National Infrastructure Advisory Council (NIAC)

NIAC Chemical, Biological and Radiological Events and the Critical Infrastructure Workforce

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Overview

- Objective/Scope
- Key Questions
- Contributors
- Findings
- Recommendations

Objective

- Provide recommendations for preparing those who work in and maintain areas considered Critical Infrastructure (CI) for a chemical event and ensure they have the tools, training, and equipment necessary to identify, respond to and recover from a chemical event.

Key Questions

- Question #1: Do organizations have employee awareness, preparedness and response training programs?
- Question #2: Is there a market incentive to invest in chemical preparedness and response programs?
- Question #3: Is there sufficient communication infrastructure in place to respond to a chemical event?

Key Questions (cont.)

- Question #4: What tools and technologies currently support chemical response capability?
- Question #5: Is there sufficient coordination between Federal, state, local and private-sector entities?
- Question #6: What can the Federal government do to encourage or facilitate enhanced preparedness and response capabilities across and between the public and private sectors?

Contributing Organizations

- Contributing government entities included:
  - DHS – multiple contributions
  - Georgia Army National Guard
  - National Library of Medicine (NLM)
- Contributing private sector entities included:
  - American Chemistry Council (ACC)
  - Chemical Sector Coordinating Council
  - BellSouth (AT&T)

Critical Sectors Represented

- Critical sectors represented in the study group included:
  - Chemical
  - Communications
  - Emergency Services
  - Energy
    - Electric
    - Nuclear
    - Oil and Gas
  - Financial Services
  - Food and Agriculture
  - Healthcare
  - Information Technology
  - Transportation
  - Water and Wastewater Management

Vulnerabilities

- EPA worst case scenario modeling identified 123 chemical plants in 24 states where a release of dangerous chemicals could threaten more than 1,000,000 people[1]
- Same scenario modeling identified 700 chemical facilities where a release could threaten more than 100,000 people
- Revised DHS study identified more than 3,400 chemical facilities where a release of dangerous chemicals could threaten more than 1,000 people
- 2004 report found 75% of chemical plants surveyed had taken some steps to improve security since the 2001 terrorist attacks.[2] Same report found communications or emergency training improvements still needed

1. 2003 assessment. Significant progress made since the EPA study.
2. (http://www.emergency.com/2005/chem_attk2005.htm)

Threats

- Chemical threats still need to be evaluated and bench-marked against comprehensive, national risk assessment priorities
- Chemical weapons or products synthesized for use as weapons
  - Chemical Weapons Convention (CWC) of 1993 named 29 specific substances and 14 broad families of chemicals that could be used as weapons
  - Blister (e.g., mustards): attack the skin and eyes, and can be fatal if inhaled in mass
  - Blood (e.g., cyanides): carry tissue-killing poisons through the body
  - Choking (e.g., chlorine): attack lung function
  - Nerve (e.g., sarin, VX agents): disrupt body's nervous system
  - Beyond military-grade substances, thousands of toxic industrial chemicals and agricultural pesticides could cause mass casualties
  - Chemicals regulated by import/export controls and 1993 CWC

Threats (cont.)

- In all cases, the agent's effect depends on:
  - Purity of the chemical
  - Concentration in the air
  - Wind and weather conditions at the time of its release
  - Length of exposure
  - Dispersion characteristics (e.g., water or liquid-based, airborne, triggered by compounds, etc.)
  - Ability to obtain or assemble significant source volumes or concentrations
  - Ability to make it airborne (e.g., a heavy liquid not volatile at room temperatures)
- Aum Shinrikyo, a Japanese doomsday cult
  - Spent an estimated $30 million on chemical weapons research
  - Killed 19 people with the nerve agent sarin
  - Encountered problems making sarin; had difficulty using it as a mass-casualty weapon

Surveillance and Detection

- Hazardous Substance Emergency Events Surveillance (HSEES)
  - CDC, Agency for Toxic Substances and Disease Registry, with 15 state health departments
  - Objective: Collect and analyze information about acute releases of hazardous substances that need to be cleaned up or neutralized according to federal, state, or local law, as well as threatened releases that result in a public health action such as an evacuation
- Toxic Exposure Surveillance System (TESS)
  - CDC with American Association of Poison Control Centers
  - Objective: Real-time national surveillance and exposure database
- National Incident Management System (NIMS)
  - DHS, FEMA
  - Objective: NIMS benefits include a unified approach to incident management; standard command and management structures; and emphasis on preparedness, mutual aid and resource management
- Electronic sensor capabilities:
  - Public sector: spectroscopic sensors, airborne spectral photometric collection technology, capillary electrophoresis
  - Private sector: electronic gas chromatography

Preparedness and Response

- Community Hazards Emergency Response-Capability Assurance Process (CHER-CAP)
  - DHS, FEMA
  - Objective: Readiness, planning, preparedness, and response coordination
- CHEMTREC drills and exercise program: HAZMAT response and containment
- Mutual aid organizations (e.g., chemical companies + public sector) and Fusion Centers
  - East Harris County (Houston, TX) Mutual Aid (EHCMA)
  - Rohm & Haas and Bristol, PA
- Project Seahawk, Charleston, SC: integrated Federal, state, local, and private sector emergency response command center

Preparedness and Response (cont.)

- Community capability assessment tool (C-Cat)
  - Regional assessment tool – focus on emergency services sector
- Emergency services capabilities assessment (ESCA)
  - Prevention, planning, and incident management
- Buffer zone plan (BZP) technical assistance (TA)
  - Prevention, protection, and response assistance extending outwards from facilities
  - Facilitates communications and response between public and private sector entities
- Private sector preparedness varies by sector
  - In general, non-chemical-related sectors address as part of general preparedness plans
  - Chemical-related sectors possess higher levels of readiness, tools, and technologies
    - HSIN; American Chemistry Council; CSCC

Communications

- Pre-defined content
  - CDC emergency communications, staged short and long messages
  - Toxic Exposure Surveillance System (TESS) communication vehicle
  - CDC in collaboration with American Association of Poison Control Centers
  - Real-time national surveillance and exposure database; access to content
- DHS Report (8 Dec 06) on incident response communications interoperability
  - 22,400 randomly selected police, fire, and EMS agencies
  - Cross-jurisdiction interoperability outpacing federal to state or state to local interoperability progress
- SAFECOM
  - Established by the Office of Management and Budget
  - Provides research, development, testing and evaluation, guidance, tools, and templates on interoperable wireless emergency communications
  - Office of Emergency Communications
- WARN Act improvements to emergency communications

Chemical Facility Anti-Terrorism Standards

- Issued by DHS, effective June 8, 2007
- Objectives
  - Provide uniform national chemical facility security standards
  - Provide reasonable preemption if state laws conflict
  - Create protected Chemical-Terrorism Vulnerability Information (CVI) and ensure information dissemination to state, local, and other first responders
  - Ensure recognition of standards already achieved
- Process
  - More than 40,000 facilities must complete a consequence screening questionnaire
  - Risk rating by DHS
  - Vulnerability assessment for high risk facilities
  - Risk remediation plan; implementation
  - Audit and enforcement
- Project 5,000 – 8,000 high risk facilities; 300 in top two tiers

Chemical Sector

- According to Department of Labor, safest manufacturing sector
- Self-organized American Chemistry Council (representing 90% of production capacity for the industry) requires membership adherence to Responsible Care® program (including security provisions)
  - Requires risk assessment and prioritization
  - Requires risk management implementation program
  - Requires 3rd party compliance verification
  - 100% member and partner compliance
- ACC members invested $3.5B in security since 9/11; other organizations demonstrate similarly high levels of investment
- CHEMTREC® program 24/7 emergency response capability
- TRANSCAER® assists responders nationwide to prepare for incidents during transit

Sector Preparedness

- Well-prepared
  - Organizations with demonstrated capabilities on planning, preparedness, communications, and response tools/technologies
    - Large communications companies
    - Major metro Fire/EMS
    - Large IT companies
    - Chemical facilities
    - Nuclear facilities
    - Large healthcare, specifically tier-1 trauma centers
    - Large electricity companies
    - Finance, as part of broad all-hazards capability
    - Large water companies
- Moderately prepared
  - Organizations making progress on planning, preparedness, communications, and response tools/technologies
    - Transportation, specifically urban mass transit

Sector Preparedness (cont.)

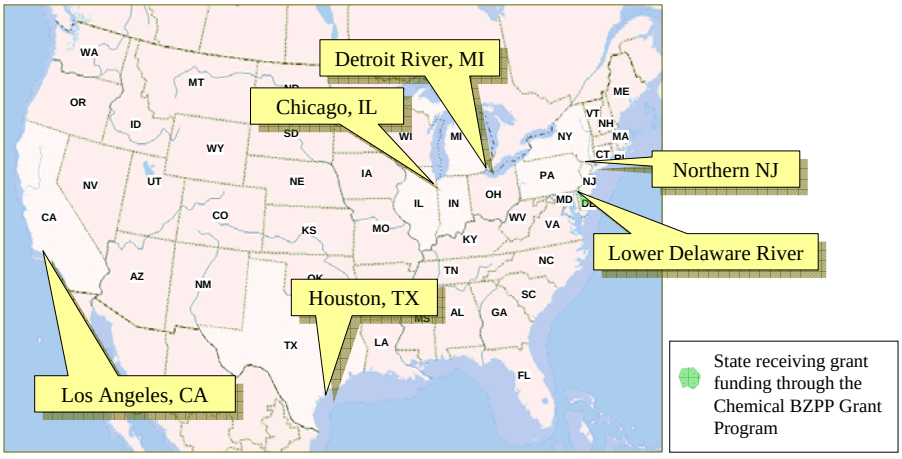
- Limited preparedness
  - Organizations with limited or no capabilities on planning, preparedness, communications, and response tools/technologies
    - Broad food and agriculture
    - Small communications companies
    - Small fire/EMS
    - Small IT companies
    - Small electricity companies
    - Small water companies
    - Small metro transportation
    - Law enforcement

Chemical Comprehensive Review

- Cooperative, government-led effort to enhance public safety by:
  - Integrating Federal, State, and local efforts
  - Preventing and preparing for potential terrorist attack
  - Identifying opportunities to reduce consequences of attack
  - Identifying opportunities to coordinate prevention and response capabilities
- Areas of focus:
  - Threat analysis
  - Facility characterization
  - Assault planning
  - Explosive ordinance disposal
  - Law enforcement resources
  - Emergency response resources
  - Maritime and transportation resources
- Better assess the risk of border controls/containment on chemical security.
  - Correlate border controls to other domestic chemical security measures; ensure consistency

From: DHS, Chemical Comprehensive Review, Regional Outreach Brief, May, 2007

Chemical CR Regions



From: DHS, Chemical Comprehensive Review, Regional Outreach Brief, May 2007

Recommendations

- Planning, preparedness, and response:
  - Complete the prioritization of comprehensive, national risk assessment (e.g., RAMCAP, NIPP, etc.) that prioritizes chemical threats and vulnerabilities within context of others (e.g., nuclear, biological, etc.)
  - Define roles and responsibilities for agencies that impact the transportation of, and accountability for, chemicals:
    - Customs and Border Enforcement
    - Transportation Security Administration
    - Department of Transportation: railroads and trucking
    - US Coast Guard – all navigable waters – MTSA regulations

Recommendations (cont.)

- Planning, preparedness, and response (cont.):
  - Improve knowledge around specific scenarios, impact, and likelihood of events
    - Assess usability/availability of planning data
    - Improve Chemical-Terrorism Vulnerability Information (CVI) availability
    - Fully deploy Chemical Security Assessment Tool
      - Prioritize sites based on potential risk factors
      - Collect detailed information to assess vulnerability
      - Evaluate data against specific threat scenarios generated by the DHS-Terrorism
    - Fully understand threat and vulnerability risk factors and attendant response mechanisms
    - Conduct, or sponsor, regional cross-sector assessments
  - Improve accessibility to planning and response material
    - Develop and propagate standardized event response planning material
    - Consider innovative planning and response content delivery (e.g. web-based delivery, emergency planning portals, etc.)
    - Establish more robust, or more frequent, tabletop planning and response exercises

Recommendations (cont.)

- Planning, preparedness, and response (cont.):
  - Clearly define response roles, responsibilities, and communication protocols. Include as part of response exercises
  - Improve planning, preparedness, and response capabilities across first responders
    - Improve accessibility and economic viability of necessary equipment
    - Improve readiness of first responders, especially law enforcement and Fire/EMS to address chemical events
    - Continue to staff and support Fusion Centers; better engage law enforcement in Fusion Centers

Recommendations (cont.)

- Surveillance and detection; tools and technologies:
  - Improve information collection, analysis, and reporting mechanisms that support chemical event detection; define S&T roadmap on same
  - Continue to fund collaborative, public-private efforts to develop more advanced detection solutions:
    - Lawrence Livermore National Lab
    - Argonne National Lab
    - Brookhaven National Lab
    - Los Alamos National Lab
  - Accelerate deployment of tools/technologies under development; identify commercialization mechanisms making solutions more broadly available to public and private sector stakeholders

Recommendations (cont.)

- Communications:
  - Continue to make progress with NIMS/NRP re-write:
    - Address national, state, local flow chart communications
    - More clearly define roles and responsibilities across all levels of government and the private sector
  - Continue to make strategic improvements, including implementation of WARN Act and Safecom
  - Improve tactical event communications capabilities, specifically around first responder, private sector, and fire/EMS/law enforcement resources

Recommendations (cont.)

- International policy:
  - Encourage full and global ratification and implementation of treaty requirements such as the Chemical Weapons Convention
  - Press for a level playing field on trade of chemicals to limit diversion or proliferation of chemicals as weapons
  - Drive global adoption of improved, risk-based site security measures
  - Address border control measures and ensure consistency of enforcement
  - Assess, and if necessary, address maritime import controls and standards
  - Provide incentives and support for global adoption of reasonable safety and security practices such as those being implemented by the International Coalition of Chemical Associations for over 70% of chemical industry operations in 52 countries around the globe.
  - Better assess the risk of border controls/containment on chemical security.
    - Correlate border controls to other domestic chemical security measures; ensure consistency

Recommendations (cont.)

- Regulations:
  - Reduce duplicative regulations from multiple agencies
  - Develop and implement more efficient regulations that are risk- and threat-based and focused on achieving performance levels
  - Ensure all agencies follow the DHS (including TSA and USCG) lead on facility, navigable waters, transportation and supply chain security, disaster planning and response initiatives, and continue to support implementation of the mission of other agencies that address safety (OSHA) health and environment (EPA) and transportation (DOT)
  - Encourage public-private sector engagement; leverage existing coordinating council infrastructure

Questions?